

[illegible]

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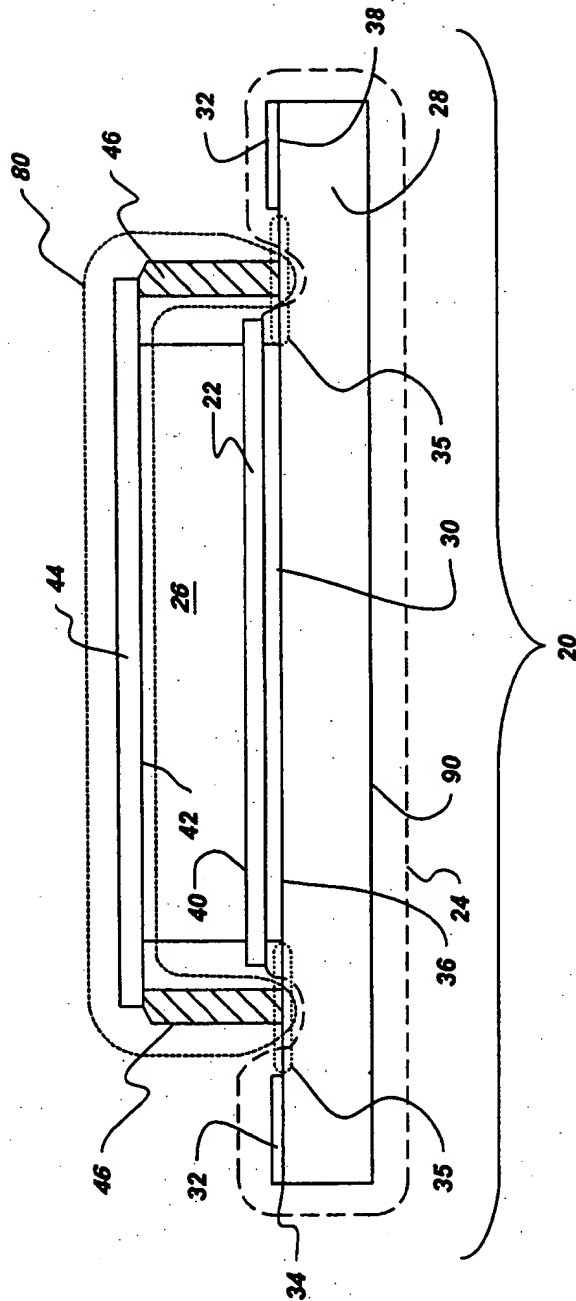


Fig. 1

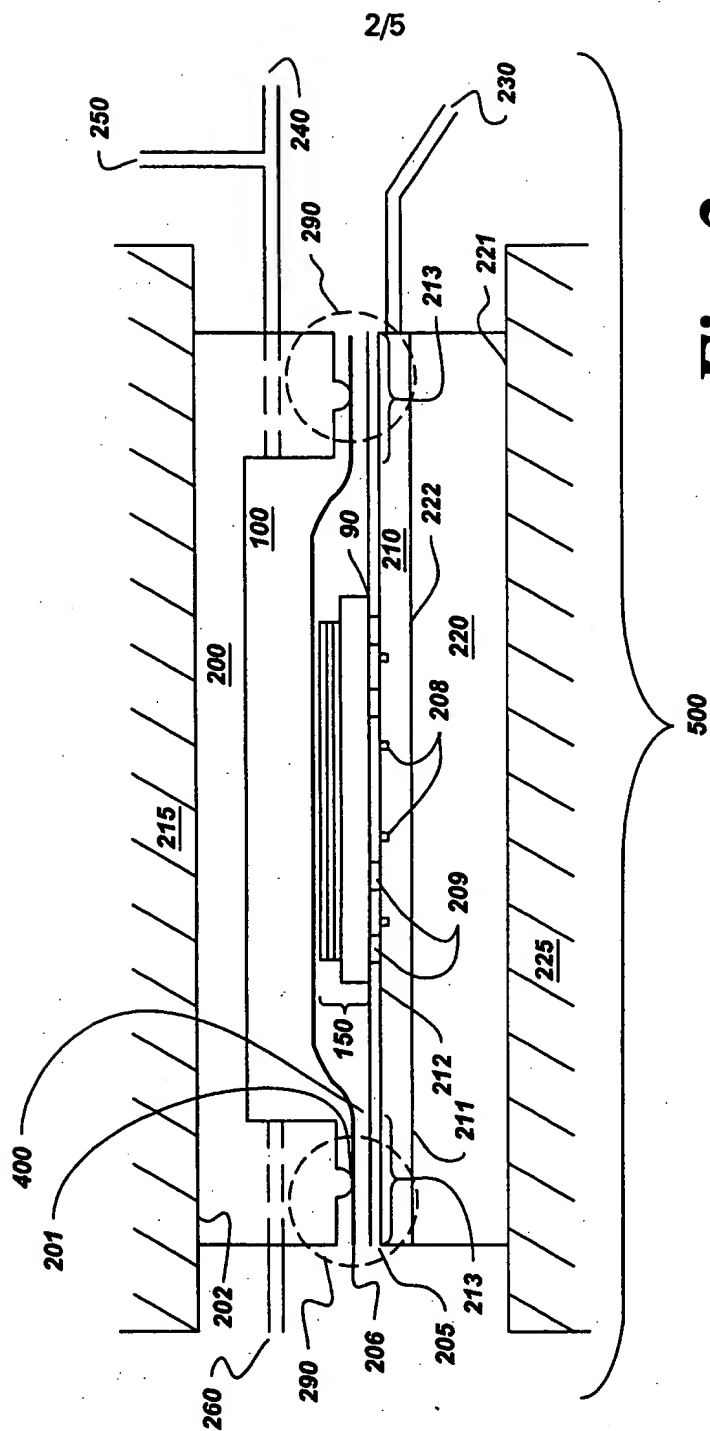


Fig. 2

Alternate Lamination Materials

Lamination material	Solvent	Solvent Drive Off Temp/Time	Bonding Temp/Time	Etch Methods	Comment
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Benzocyclobutene (BCB)	mesitylene	~150° C / ~30'	~200 - 210° C / 60'	CF4/O ₂ plasma, excimer laser	Thermoset TCE ~50 ppm/C
Ultem® Benzoflex S-552	anisole	~150° C / ~30'	~200 - 220° C / 60'	O ₂ plasma, excimer laser	Thermoplastic TCE ~50 ppm/C
Photodefinable BCB	mesitylene	~150° C / ~30'	~200 - 210° C / 60'	Expose to actinic radiation, then wet etch after solvent drive off	Thermoset
Epoxies with latent heat catalysts	ketones	not required	~150-200° C / 60'	O ₂ plasma, excimer laser	Thermoset TCE ~50 ppm/C
Polyesters	ketones anisole	~150° C / ~30'	~150° C / 60'	O ₂ plasma, excimer laser	thermoplastic
Acrylics	toluene mesitylene	~150° C / ~30'	~200 - 210° C / 60'	O ₂ plasma, excimer laser	thermoplastic

Fig. 3

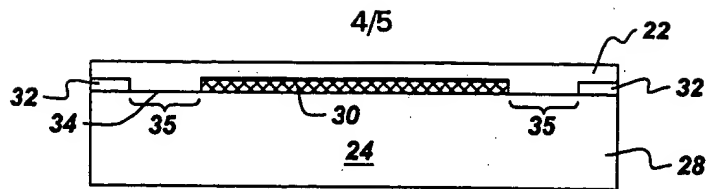


Fig. 4

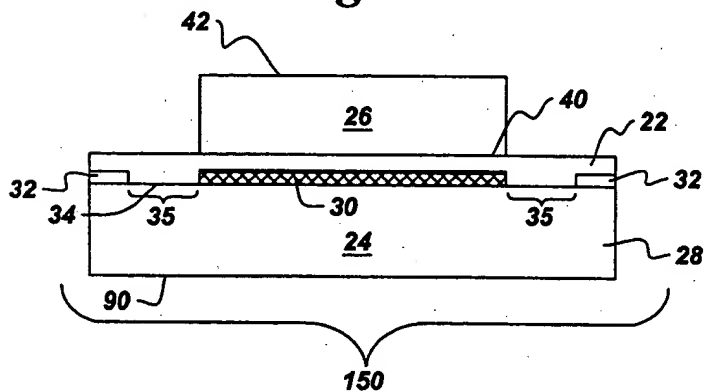


Fig. 5

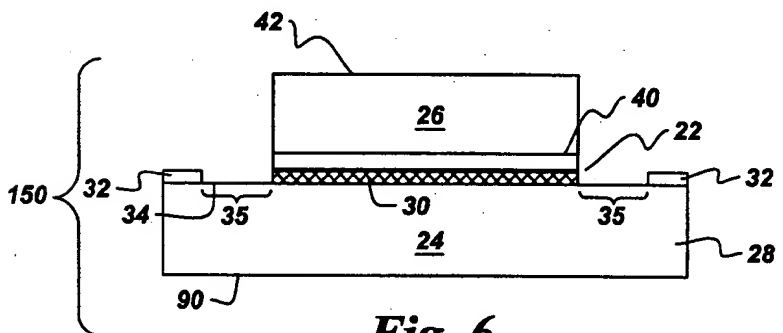


Fig. 6

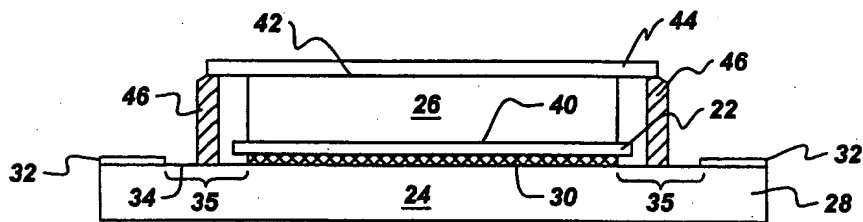


Fig. 7

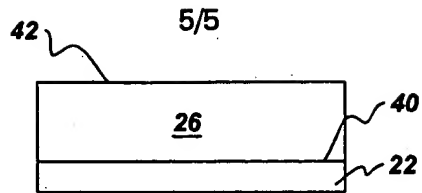


Fig. 8

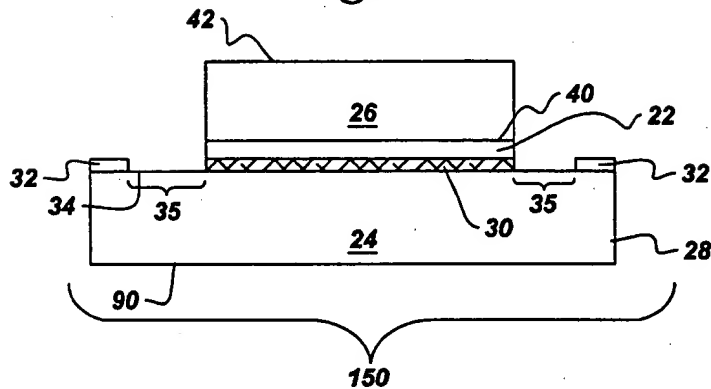


Fig. 9

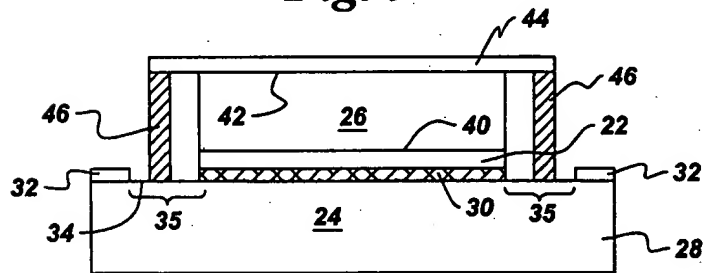


Fig. 10

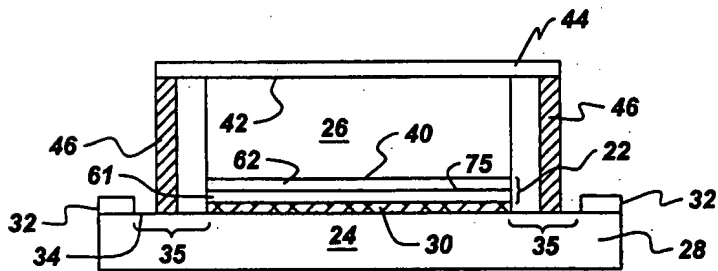


Fig. 11